

Final Project

CS 6366/4366 Neural Networks and Deep Learning

Paper Due: 8:00 PM EDT, 3 May 2024

Presentations: 9:30 AM - Noon EDT, 26 Apr 2024

Please read and follow these instructions.

Work Statement: Every person in this class must submit a project work statement. In this statement, explain what work you personally contributed to your project. Don't mention what other members of your group did, only what you did. **This statement is required and if you do not include it, you will not get any credit for this assignment.**

Attribution: This project should be the work of your group and only your group. If you reuse code written by another person, such as code from a Stack Overflow answer or library documentation, cite the source (with a link) in a comment near where you use the code. Reusing code from a library via an 'import' statement does not require any citation. I expect that you will reference others' work frequently, but please don't represent the work of other people or the output of any generative algorithm as your own work. If you have any questions about this, communicate with me *before* the presentation date.

Presentation:

Your group will have five (5) minutes to present a concise summary of your work. Groups of 4 will have ten (10) minutes. If you are in a group of less than 4 and would like more time, let me know prior to 23 Apr.

In this presentation, communicate:

- What problem you are solving, and who might care
- What sort of neural network model you trained
- How your model performed
- A brief demonstration of your model

You may not have a positive result, or you might find that your method is promising but you need more data or training time. Such results will not negatively impact your grade on this presentation, provided that you did the work and communicate the above elements.

Presentation Technical Details:

Be prepared to present your work on 26 Apr. The most straightforward way to do this is to bring a laptop computer with an HDMI or Thunderbolt port for connection to the classroom projector. Have your model loaded and ready to run before it is your turn to present. Bring a charger.

Communicate with me before 23 Apr if you would like to propose another method to present your work.

Paper:

This does not need to be a traditional paper for printing; it could also be a website containing similar content to a paper, such as <https://distill.pub/2017/momentum/>. One advantage of this format is that you could host your work publicly to more easily communicate it to others in the future. I have found <https://quarto.org/> to be an excellent static site generator for this purpose.

Detail your project in a report. Include:

- What question you answered with your investigation and/or what problem you solved
- What prior related work exists
- How your approach differs from prior related work
- Your design of experiment
- What data you used and how you sourced it
- What neural network model(s) you trained
- How you measured success
- Results
- Future work (optional, if any exists)

Include a list of references with appropriate citations; following the same guidelines as the literature review. You can reuse work from the literature review and project design deliverables.

You may not have a positive result, or you might find that your method is promising but needs more data or training time. Such results will not negatively impact your grade on this project, provided you conducted an experiment or attempted to solve a problem by training a neural network, you were able to quantify the results of your attempt, and you can describe why your approach was (or was not) successful.

There is no minimum length requirement, provided your report is complete in its description of your work. Do not exceed 10,000 words. Submit a single report; ensure all group members' names are included. If you write a PDF, upload it to blackboard. If you write a website, use a public version control system such as GitHub and provide me with a link to both the source repository and to the hosted site.

Reproduction: Provide all code as an appendix, not part of the paper.

I should be able to reproduce your work, which means you must provide model(s), weights, data, and a `requirements.txt`. These must be structured in a way that makes reproducing your work straightforward: an example would be a single tarball that includes your folder structure, along with a `readme`. Another example would be a git repo I can clone.

Should I need to manually edit your code to ingest data, create directories, find data from external sources, figure out dependencies, etc., you will lose credit on this project.

If you believe your project is significantly complicated such that reproducibility cannot be straightforward, you may schedule a “demo day” with me on 6, 7, or 8 May. You must still submit your paper with a code appendix by 3 May, and that code will be what you demonstrate the following week.